

CHAPTER 2 OVERVIEW OF INSTITUTIONAL CONTROLS

2-1. Introduction. Institutional controls are mechanisms which protect property owners and the public from hazards contained on a site by limiting the access or use of a property, or by warning of the hazard. Institutional controls are substantially the same as “land use controls,” as defined in the Department of Defense’s Interim Policy on Land Use Controls Associated with Environmental Restoration Activities (31 August 2000). This chapter discusses the three general types of institutional controls: legal mechanisms, engineering controls, and educational programs. Specific examples of these types of institutional controls are presented in Appendix C. This chapter also discusses some of the strengths and limitations of these institutional controls, as well as their applications.

2-2. Legal Mechanisms.

a. This section provides an overview of the effectiveness of legal mechanisms. Specific legal approaches including easements, restrictive covenants, reversionary interests, zoning, permitting, siting restrictions, and overlay zoning have been used for many purposes other than limiting exposure to environmental risks such as OE, and are described in detail in Appendix C.

b. Legal mechanisms are particularly effective types of institutional controls because:

(1) Other than periodic monitoring necessary for enforcement, legal mechanisms do not require the physical maintenance that is necessary for other types of institutional controls, such as engineering controls.

(2) Title recording systems, local planning commissions, and other administrative systems and associated staff already exist in most jurisdictions and can be used to implement a legal mechanism as part of an institutional control program. Additional funding may be required for the administering agency depending on the extent of additional effort required due to the implementation of an institutional control program at a site within their jurisdiction.

c. Legal mechanisms require constant oversight and support in order to remain effective. Administrative programs to implement and enforce legal mechanisms are already in place; however, they are sometimes not effective in protecting against inappropriate land use and should be used in conjunction with other programs.

2-3. Engineering Controls.

a. This document also considers engineering controls. Engineering controls either limit the public's access to a site or limit the public's exposure to the residual contamination that remains on a site to an acceptable level. Engineering controls can take on many forms and are often developed to meet the specific conditions of a site. Engineering controls are most effective when implemented in concert with other institutional controls, rather than as stand-alone mechanisms.

b. When using engineering controls to limit the public's exposure to contaminants, the current land use of the area around the contaminated site must be considered. For example, if the property is surrounded by residential areas, schools, or playgrounds, or if the property is frequented by the public, the potential for exposure and adverse consequences is increased and therefore a higher level of access control would be necessary. Examples of engineering controls that have historically been effective in limiting access are fences, signs, and soil caps. Appendix C provides information on the strengths and limitations of these types of engineering controls.

c. Engineering controls protect against inadvertent access or exposure to the hazards associated with a site. They have the advantage of being passive, i.e., once they are in place they do not require human interaction to provide notice or protection (other than to maintain the integrity of the control). Another advantage of engineering controls is that they provide a direct deterrent to those who are the most likely to come into contact with a contaminated area by either limiting access or providing a warning as to the nature of the dangers posed by a contaminated site. Engineering controls are an important part of institutional control programs in areas where it is particularly important to protect against inadvertent access, such as in areas where it can be expected that children will be in the vicinity. Engineering controls require routine inspection and maintenance in order to remain effective.

2-4. Educational Controls.

a. The use of educational controls is usually a good strategy to manage and reduce residual risk from public exposure to OE. An education program may take on many forms and may be easily tailored to meet the specific needs of a site and the surrounding community. Examples of education programs include formal education seminars and public notices.

b. Educating the local community is an extremely important part of any institutional control program. Generally, if people are aware of and understand the hazards associated with an OE-contaminated site, they will take the necessary precautions to avoid exposure. Education programs can be tailored to meet the specific needs of a particular audience (e.g., local homeowners, school children, regulators, developers, etc.) and can be performed as often as necessary to educate those that are at greatest risk for exposure to OE. Educational efforts constitute a stand-alone institutional control, but

can also improve the effectiveness of other controls that are part of the overall program. Appendix C provides additional information on the strengths and limitations of education controls.